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Increasing the Productivity of Housing Development Corporations

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INCREASING THE PRODUCTIVITY OF HOUSING DEVELOPMENT CORPORATIONS

By

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Housing development corporations -- or HDC's as they are coming to be known -- are a relatively new force in the development of housing for low income families in the United States. Widespread creation of HDC's has taken place only in the last five years. HDC's are ordinarily organized as nonprofit corporations which may develop housing themselves, or more typically, may lend money and/or provide technical assistance to sponsors who in turn develop housing. Early HDC's were funded by private and public sources, by federal government agencies, particularly OEO and the Model Cities Administration, and by state and local governments. HDC's and the nonprofit sponsors they assist are increasingly important vehicles for creating and carrying out housing assistance programs. Since nonprofit sponsorship of low income housing was first authorized by the Housing Act of 1959,[1] the sector has accounted for over 30 percent of the assisted units produced in the United States.[2]

The persistence of bad housing conditions for large numbers of low income families, the serious shortfalls from stated national housing goals, and the strident demands for better environments have combined to heighten concern about ability to produce the required housing improvements.

With the objective of generating techniques to improve its own operational productivity, the Low Income Housing Development Corporation has attempted to seek out and adapt systems techniques to the development of low income housing. This paper describes an application and extension of the standard technique of network analysis to the new area of low income housing development.

LIHDC is a nonprofit HDC which operates statewide in North Carolina. The corporation was organized in 1966; the background data used in the generation of the network is based on approximately three years of operating experience. LIHDC was funded originally with a development loan fund of $290,000 which has not been replenished. The funds are being used to assist in the development of 14 projects, which will serve 1200 families in housing financed by $14,600,000 in mortgages.

Measuring the Productivity of an HDC

The productivity (or output per unit of input) of an HDC must be measured against the objectives of the organization. HDC's generally have two sets of objectives. One set of objectives relates to the production of housing units utilizing existing housing assistance programs. The other set of objectives relates to the advocacy of change in housing policies, programs and detailed project implementation so that they serve the interests of low income families more effectively. An operating HDC becomes acutely aware of the gross inadequacies of the existing housing assistance programs.

It is relatively easy to measure productivity of HDC's in terms of the dollar value and the physical units of housing output. It is far more difficult to measure the productivity or cost-effectiveness of HDC's in terms of reducing poverty by improving the relative well-being of low income families. This paper deals only with productivity in narrow physical and financial terms. But unless HDCs are highly productive in these terms they may not survive to pursue the broader social objectives they ultimately seek.

HDC Development Funds

The development, or revolving loan, fund of an HDC is budgeted and accounted for separately from the administrative expenses of operating the fund. Loans are made to sponsors for the initial expenses of developing a project up to the point when mortgage funds become available to finance the project. The initial expenses may include costs incurred for site options, attorney's services, architect's services, subsoil investigations, mortgage insurance commitment, title searches, and building permits. The front money is returned to the HDC by the sponsor out of the first takedown of mortgage funds at the time of the initial closing. Typical development fund draws are specified in Table 1.

The number of housing units which an HDC can help sponsors produce (the physical production capacity of an HDC), is a direct function of the size of the revolving fund and how fast the fund can be turned over. If a revolving loan fund can be turned over three times in two years instead of twice, the HDC can increase its productivity 50 percent and assist half again as many low income families.

LIHDC analyzed its own operations in an attempt to rationalize the operation of the revolving fund by projecting the required cash outflows for individual housing projects and carefully timing commitments for future draws against the fund. The basic cash flow projections were derived from a computerized network developed by the staff of approximately 400 activities describing in detail the development of a low income housing project.[3]

Table I

TYPIGAL DEVELOPMENT FUND DRAWS

$1,000,000 Mortgage

Development Phase	Development Fund Draw	Estimated Amount	Cumulative Draw
Start Project			
Feasibility	Attorney's fee (5%)	$ 500	$ 500
	Architect's fee (5%)	2,500	3,000
	Option on site	4,000	7,000
	Topographical survey	2,000	9,000
Conditional Commitment	FHA conditional commitment fee	2,250	11,250
	Soil borings	2,000	13,250
	Architect's fee (10%)	5,000	18,250
Firm Commitment	FHA firm commitment fee	2,250	20,500
	Attorney's fee (5%)	500	21,000
	Architect's fee (15%)	7,500	28,500
	FNMA/GNMA commitment fees (1.5% - 1.75% of mortgage amount)	22,500	51,000
	Building permit	500	51,500
Initial Closing	Title search, recording and title insurance	2,000	53,500

[1] Subsequently, nonprofit sponsors were included as eligible mortgagors in each of the succeeding major housing assistance programs: the below-market-interest-rate in 1961, the rent supplements in 1965, and interest subsidies in 1968.

[2] FHA estimates.

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**Statistical advisory services and computer programming in developing the HDC production capacity estimating model were provided by Fred Sheppard, Vice President, Triangle Automation, Inc., Durham, North Carolina.

[3] As initially constructed, the network is deterministic rather than probabilistic. As more experience is gained we can attach likelihoods of completing activities at specified times and costs.

HDC Production Capacity Estimating Model

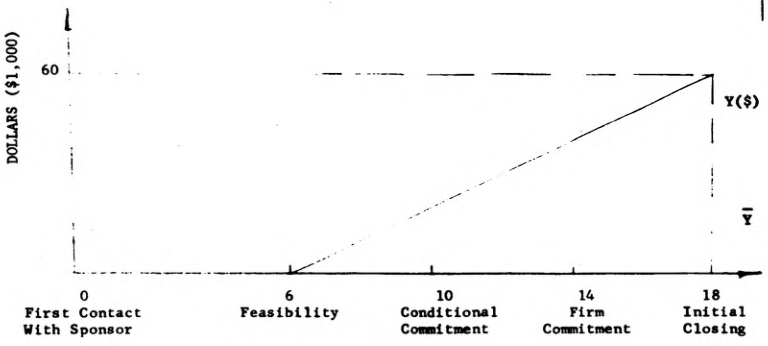
Estimates of the actual production capacity of an HDC must take the following six factors into consideration:

1. The size of the development fund,
2. The total front money requirements for any given development,
3. The timing of the front money expenditures,
4. The period during which the front money is outstanding.
5. The lag time between commitments against the development fund, and
6. Variability in each of the other factors and the consequent requirements for a contingency reserve.

A model has been developed to help the staffs of HDC's estimate the production capacity of their development fund. The model takes each of the six factors mentioned above into consideration.

At any point in time, the aggregated outlays from the development fund may add up to an amount equal to the development fund less contingency reserves. The model is currently specified in a linear form; that is, the rate of expenditures for each project is constant. On the basis of a number of empirical observations, however, it appears that the linear or constant rate of expenditures is a fairly good approximation of the actual rate.

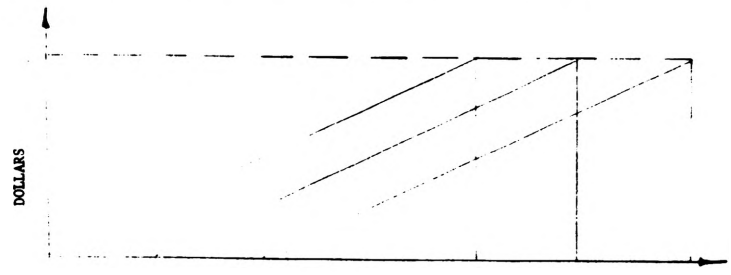
Based on the estimates of the development fund cash requirements and the timing of activities indicated by the network, the cash outlays for a single development look approximately as shown in Figure 1.



DEVELOPMENT FUND CASH OUTLAY FOR SINGLE PROJECT

Figure 1

By pooling the funds and timing the commitments against them, the cash outlays for a series of projects look approximately as shown in Figure 2.



DEVELOPMENT FUND PHASED CASH OUTLAY FOR SEVERAL PROJECTS

Figure 2

The model for estimating the amount of housing program activity which can be supported by a development fund of a given size, assuming no start-up delays, is:

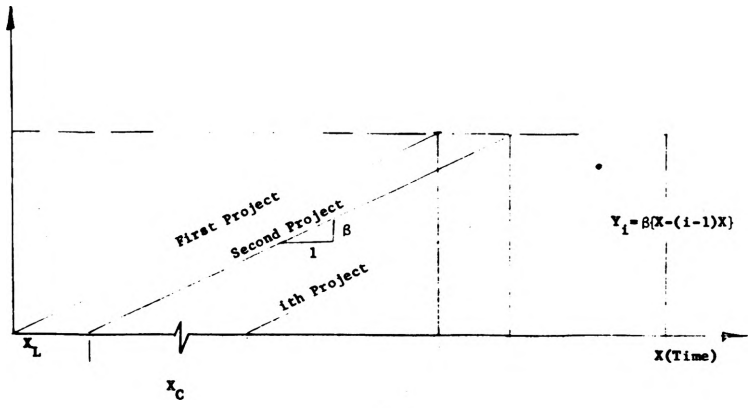
$$\sum_{i=1}^{n} Y_i = \sum_{i=1}^{n} \beta \{X - (i-1) X_L\} \leq T-C: \quad (X \leq X_c)$$

Where:

- i = project number
- Y_i = dollar outlay on (i)th project at anytime X
- $\bar{Y}$ = maximum dollar outlay on a given project
- X_c = period of front money commitment
- X = total lapsed time
- $X_i = X-(i-1) X_L$ = lapsed time of (i)th project
- X_L = lag time between commitments
- n = number of projects
- $\beta = \frac{\bar{Y}}{X_c}$ = rate of cash outlay
- $Y_i = \{X-(i-1) X_L)\}: (X_i \leq X_c)$
- T = total development loan fund
- C = contingency reserve

$$\sum_{i=1}^{n} Y_i \leq T - C$$

The terms are defined graphically as shown in Figure 3.



GRAPHIC DEFINITION OF TERMS

Figure 3

The equation can be simplified:

$$\left(\begin{array}{c}\text{Amount of front}\\ \text{money needed}\\ \text{per development}\end{array}\right) \times \left(\begin{array}{c}\text{Number}\\ \text{of}\\ \text{Developments}\end{array}\right) - \frac{\bar{Y}}{2}(n-1) \leq \begin{array}{c}\text{Total}\\ \text{Development}\\ \text{Loan Fund}\end{array} - \begin{array}{c}\text{Contingency}\\ \text{reserve}\end{array}$$

$$\bar{Y} \times n - \frac{\bar{Y}}{2}(n-1) \leq T - C$$

For example, if we have the following situation:

T = Development Loan Fund = $1,000,000

C = Contingency Reserve 250,000

$\bar{Y}$ = Amount of front money needed per development of 100 units 60,000

Then to solve for the number of projects which can be supported with the development fund we have:

$$60n - \frac{60}{2}(n-1) \leq 1{,}000 - 250$$

$$60n - 30(n-1) \leq 750$$

$$60n - 30n + 30 \leq 750$$

$$30n \leq 720$$

Number of projects: $n \leq 24$

Commitment period: $X_L = \frac{365}{24} = 15.2$ days

This implies that the HDC would be in a position to make a development loan commitment to a sponsor every 15 to 16 days.

Implications of the Model for Increasing the Productivity of HDC

1. There are significant economies of scale in the operations of HDC's or at least in the financial aspects of development.
2. In order to maximize the rate of turnover of development funds, loan commitments to sponsors should take the form of a line of credit rather than a block transfer of funds.
3. Obviously, irrecoverable expenditures from the development fund should be minimized to the extent possible. This requires that outlays be made only on a prior determination that the project is feasible. Starting with a "feasible project," it is possible to work backwards to calculate precisely allowable costs for all cost components. And all outlays must be includable in and recoverable from the final mortgage amounts.
4. Operating costs for administration of HDC's should be budgeted on the basis of (1) the estimated productivity of staff members and (2) the amount of activity the revolving fund can support. One major reason for trying to estimate the housing production that can be supported with a given development fund is to assure that the revolving fund and the administrative budget of an HDC are appropriately related in amounts. If the HDC can estimate the number of projects its revolving fund will support and the number of projects that each staff person can handle, then the operating budget requirements can be projected more accurately. For instance, staff members of housing development corporations have estimated that after they learn their jobs they can at one time give technical assistance to six to eight sponsoring groups. On this basis with a million dollar development fund and a 25 percent contingency, an organization doing 24 projects would need three to four staff persons in the field.

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